REMARKS

The following remarks are fully and completely responsive to the Office Action dated August 12, 2003. Claims 9-14 are pending in this application with claims 1-8 cancelled by the present Amendment. In the outstanding Office Action, claims 1-8 were rejected under 35 U.S.C. § 103(a) (three different rejections). No new matter has been added. Claims 9-14 are presented for consideration.

35 U.S.C. § 103(a)

Claim 1 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Silventoinen (U.S. Patent No. 6,594,250) and further in view of Akihiro (JP 11074831). In making this rejection, the Office Action asserts that the combination of these two references teaches and/or suggests each element of the claimed invention.

Claim 2 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Silventoinen (U.S. Patent No. 6,594,250) and further in view of Akihiro (JP 11074831) and Ide (U.S. Patent No. 6,498,804). In making this rejection, the Office Action asserts that the combination of these three references teaches and/or suggests each element of the claimed invention.

Claims 3-8 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Silventoinen (U.S. Patent No. 6,594,250) and further in view of Akihiro (JP 11074831) and Wong (U.S. Patent No. 6,453,177). In making this rejection, the Office Action asserts that the combination of these three references teaches and/or suggests each and every element of the claimed invention.

The cancellation of claims 1-8 renders these rejections moot.

New Claims

New claims 9-14 have been added to claim Applicant's invention. New claim 9 recites a wireless base station that transmits a control signal to a non-specific mobile station by forming an omnidirectional antenna pattern and transmits a control signal to a specific mobile station by forming an array antenna pattern. The wireless base station includes a judging unit operable to, when the control signal is to be transmitted to the specific mobile station, refer to a reception condition of and a time lapse from, an immediately preceding reception from a mobile station and judge if one or both of the reception condition and the time lapse satisfy a predetermined criterion. A controlling unit is operable to, when the judging unit judges in the affirmative, stop the wireless base station from forming the array antenna pattern and force the wireless base station to transmit the control signal by forming an omnidirectional antenna pattern.

Independent claim 14 recites a controlling method to be used by a wireless base station that transmits a control signal to a non-specific mobile station by forming an omnidirectional antenna pattern and transmits a control signal to a specific mobile station by forming an array antenna pattern. This controlling method includes, when the control signal is to be transmitted to the specific mobile station, referring to a reception condition of and a time lapse from, an immediately preceding reception from a mobile station and judging if one or both of the reception condition and the time lapse satisfy a predetermined criterion. When the judgment is in the affirmative, stopping the wireless base station from forming the array antenna pattern and forcing the wireless base station to transmit the control signal by forming an omnidirectional antenna pattern.

Silventoinen teaches a method of monitoring base stations with discontinuous control channel transmissions. As part of this method, this reference teaches intermittently transmitting a control signal using an omni-directional antenna.

Akihiro teaches a radio communication method and radio communication system that transmits control information using an omni-beam (omni-directional antenna) when transmitting from a base station to a plurality of mobile terminals. Akihiro also teaches using a directional beam (array antenna) for the transmission and receipt of individual traffic data between the mobile terminal and the base station.

Also attached is a partial translation of Akihiro.

Ide teaches a method of directional reception using an array antenna and adaptive array antenna unit. Figure 1 of Ide provides a block diagram of an adaptive array antenna apparatus. This apparatus includes a diversity reception circuit 113 which is shown in detail in Figure 2. This diversity reception circuit has a reception directivity control circuit 127 which calculates a weight coefficient for each of the plurality of antennas. Multipliers 120, 121, 122 and 123 multiply the input signals from antennas 104-107 by the weighting coefficient output from the reception directivity control circuit 127. Adder 124 combines the outputs of multipliers 120, 121, 122 and 123. Determination circuit 125 determines the output of adder 124, and error detector 126 detects an error between the output of adder 124 and the determination result from the determination circuit 125. The error detector 126 outputs the difference (error) between the output of the determination circuit 125 and the output of adder 124. Based on the signal output from error detector 126, reception directivity control circuit 127 updates the weighting coefficient values so as to reduce the error. Accordingly, Ide

teaches calculating a weight coefficient for each of the plurality of antennas based on the error or difference between the output of adder 124 and the output of determination circuit 125. The reception directivity control circuit 127 is not shown as receiving any signal input from the antennas or from the output of the A/D converter 111.

Adder 124 appears to combine, using the calculated weight coefficients, the input signal received by each antenna to obtain a reception signal.

Wong also teaches that it is typical in wireless systems to use forward link power control algorithms to adjust the base station downlink transmitting power level to the adequate minimum in order to enhance downlink system capacity.

While the prior art teaches using an omnidirectional antenna to transmit control signals from the base station to a mobile station, the cited references fail to teach and/or suggest that the base station uses an array antenna pattern to communicate with a mobile station. Similarly, the cited references fail to disclose and/or suggest a judging unit operable to, when the control signal is to be transmitted to the specific mobile station, refer to a reception condition of and a time lapse from, an immediately preceding reception from a mobile station and judge if one or both of the reception condition and the time lapse satisfy a predetermined criterion. The cited prior art also fails to disclose and/or suggest a controlling unit operable to, when the judging unit judges in the affirmative, stop the wireless base station from forming the array antenna pattern and force the wireless base station to transmit the control signal by forming an omnidirectional antenna pattern. Accordingly, Applicant respectfully requests consideration and allowance of new claims 9-14.

Conclusion

Applicant's amendments and remarks have overcome the rejections set forth in the Office Action dated August 12, 2003. Applicant's cancellation of claims 1-8 renders moot the rejection of these claims under 35 U.S.C. § 103(a) (three different rejections). Applicant's remarks have distinguished new claims 9-14 from the cited prior art. Accordingly, claims 9-14 are in condition for allowance. Therefore, Applicant respectfully requests consideration and allowance of claims 9-14.

Applicant submits that the application is now in condition for allowance. If the Examiner believes the application is not in condition for allowance, Applicant respectfully requests that the Examiner contact the undersigned attorney by telephone if it is believed that such contact will expedite the prosecution of the application.

The Commissioner is authorized to charge payment for any additional fees which may be required with respect to this paper to our Deposit Account No. 01-2300, making reference to attorney docket number 101201-00009.

Respectfully submitted,

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Enclosure: Partial Translation of Akihiro

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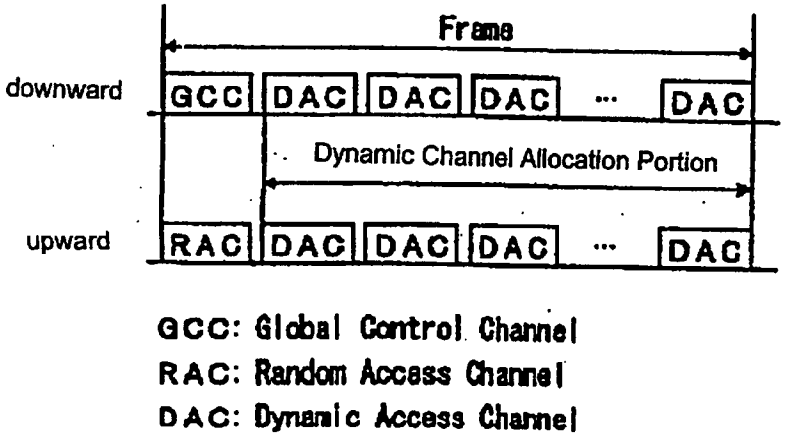
The partial translation of the cited reference by Akihiro

[0036] The first embodiment. FIG. 1 is a schematic drawing that shows an example of the frame structure of the present invention. In FIG. 1, the horizontal axis expresses time. GCC (Global Control Channel) denotes a channel for providing downward broadcast information, transmitted by the base station to a mobile terminal. RAC (Random Access Channel) denotes a random access channel for upward individual control information transmitted from a mobile terminal to a base station. DAC (Dynamic Access Channel) is a channel for transmitting/receiving individual traffic data for each user that is transferred upwardly and downwardly.

[0037] GCC is a downward broadcast channel for providing, from the base station to all the mobile terminals within the communication area, boadcast-type information such as radio circuit information, regulation information, resource allocation information, and the information is transmitted using an omni-beam. The operation of the base station transmitting GCC will be explained with reference to the drawing. FIG. 2 shows how the base station transmits GCC to all the mobile terminals within the communication area.

FIG. 1



GCC: Global Control Channel
RAC: Random Access Channel
DAC: Dynamic Access Channel

FIG. 2